

A REVISION OF THE AUSTRALIAN TROMBIDIIDAE (ACARINA)

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Fig. 1-3.

RECENTLY Dr. Sig Thor (Zool. Anz., 1935, ex, pp. 107-112) has divided the family *Trombidiidae* into ten subfamilies. In this paper therefore I propose to revise our knowledge of the Australian forms in the light of Sig Thor's studies.

Subfamily I, TROMBELLINAE Sig Thor, 1935.

Body elongate, abdomen rectangular. Cuticle strong, tuberculate; hairs ciliated or simple, short and pointed; the two pseudostigmal hairs placed close together in the middle of the thorax on one or two prominences between the two pairs of stalked or sessile paired eyes. Fourth segment of palp with various spines or hairs; fifth segment long.

In this subfamily Sig Thor places only the typical genus *Trombella* Berl. 1887. In a subsequent paper (Zool. Anz. 1936, exiv, pp. 29-32), however, he puts the genera *Chyzeria* Canest. 1897 and *Parachyzeria* Hirst 1926, both of which he omitted from the earlier paper, in the subfamily *Microtrombidiinae*. According to his subfamily diagnosis, both the above genera seem to me to be more closely related to *Trombella* and should, I believe, be grouped with that genus in the *Trombellinae*, rather than in the *Microtrombidiinae*. Such inclusion, however, does necessitate a slight alteration in the diagnosis of the *Trombellinae*. In both *Chyzeria* and *Parachyzeria* the crista is absent and the pseudostigmal hairs are placed close together on a single prominence, while the paired eyes are on long peduncles and not sessile. The above characteristics are included in the diagnosis of the subfamily as given above.

The three genera here included in the subfamily may be keyed as follows:

1. Pseudostigmal hairs on two slightly separated tubercles. Body hairs simple or very finely serrated. Eyes 2 + 2, sessile. Dorsal surface of abdomen often with glandular depressions Gen. *Trombella* Berl. 1887.
Pseudostigmal hairs on a single tubercular prominence. Body with or without lateral processes; hairs ciliated and simple. Eyes 2 + 2, pedunculate . . . 2.

2. Body with 4 lateral abdominal processes on each side. Dorsum posteriorly with simple sinuate hairs, overlying which are long ciliated hairs.

Gen. *Chyzeria* Canestrini 1897.

Body without above processes. Dorsum anteriorly with four brushes of very long ciliated hairs, underlying which posteriorly are the simple sinuate hairs as in *Chyzeria* Gen. *Parachyzeria* Hirst, 1926 (not Australian).

Genus *Trombella* Berlese, 1887.

The only known Australian species is *Trombella warregensis* Hirst 1929, which is recorded from New South Wales and South Australia.

Genus *CHYZERIA* Canestrini, 1897.

This genus is widely distributed in Australia and also occurs in New Zealand. The following forms have been described and have been keyed in an earlier paper (Womersley 1934) ; *C. australiense* Hirst 1928 ; *C. australiense* v. *musgravei* Hirst 1929 ; *C. a.* var. *occidentalis* Hirst 1929 ; *C. a.* var. *hirsti* Wom. 1934 ; *C. insulana* Hirst 1929 ; *C. montana* Hirst 1929 ; *C. armigera* Hirst 1929.

Subfamily II, TANAUPODINAE Sig Thor, 1935.

Body moderately broad. Cuticle smooth or tuberculate ; hairs pointed, short or long. Crista weak, without sensillary areas ; the two pseudostigmal hairs placed near the crista in the middle of the thorax. The two pairs of sessile eyes sometimes absent. Palpi with few spines. Legs short, seldom long.

This subfamily is as yet unknown from Australia. It includes the following genera : *Tanaupodus* Haller 1882 ; *Eothrombium* Berlese 1910 ; *Rhinothrombium* Berlese 1910 ; *Typhlothrombium* Berlese 1910 ; *Neotanaupodes* Garman 1925.

Subfamily III, JOHNSTONIANINAE Sig Thor, 1935.

Abdomen cylindrical, with pointed simple hairs. Crista well developed, with two sensillary areas in the middle (or at ends) and 4 (2 pairs) of pseudostigmal hairs. With a distinct nasus. Eyes shortly stalked or sessile. Palpi with or without a few tibial spines. Legs moderately long.

Included here by Sir Thor are *Johnstoniana* George 1909 (= *Diplothrombium* Berlese 1910 = *Rohaultia* Oudemans 1911), *Centrotrombidium* Kramer 1896, *Notothrombium* Storkan 1934. To these should be added *Myrmicotrombium* Womersley 1934. The genus *Rohaultia* Oudemans was erected for a larval form. As the genus *Centrotrombidium* Kramer possesses only one pair of pseudostigmal hairs on a single sensillary area of the crista, the inclusion of it here does

not seem natural. It would probably be better placed in the *Microtrombidiinae*. With the exception of this genus and of *Notothrombium*, the description of which is not available to me, the two Australian genera may be separated thus:

1. Eyes 2 + 2, sessile. Crista with either both or only one pair of pseudostigmal hairs situated medially; if only one, then the second pair is at the anterior end; both pairs on sensillary areas. Gen. *Johnstoniana* George 1909.
(= *Diplothrombium* Berl. = *Rohaultia* Ouds.).
2. Eyes 1 + 1, sessile. Crista with two pairs of pseudostigmal hairs placed at opposite ends, on sensillary areas Gen. *Myrmicotrombium* Wom., 1934.

Genus JOHNSTONIANA George, 1909.

= *Diplothrombium* Berl. 1910, Hirst 1928, Womersley 1934.

= *Rohaultia* Ouds. 1911, Wom., 1934.

Only a single species *Johnstoniana australiense* (Hirst, 1928) is known from Australia. It was described by Hirst from Queensland and was later recorded by the present writer from South Australia.

Genus MYRMICOTROMBIUM Womersley, 1934.

This genus is only known from the type species *M. brevicristatum* Wom. described from specimens found in an ants' nest in South Australia.

Subfamily IV, EUTROMBIDIINAE Sig Thor, 1935.

Abdomen broad, triangular (except the narrow *Leptothrombium*), with short thickly ciliated hairs and with a few transverse furrows. Apex of abdomen with an oval shield-like area, seldom without. Thorax anteriorly with a distinct nasus. Crista well developed, with a medial small but solid sensillary area and two pseudostigmal hairs between the shortly pedunculate or sessile paired eyes. Palpi with strong accessory claw and many strong spines. Legs strong, of variable length. Larvae with 2 or 3 dorsal shields; lower lip forming a chitinous ring; tarsal claws of leg III strongly modified, the inner claw being stump-like and projecting backwards.

The genera placed here by Sig Thor are *Eutrombidium* Verduin 1909, *Leptothrombium* Berlese 1912, and *Cercotrombium* Methlagl 1927. The last is only known from the larval stage, *Eutrombidium* from both larva and adult, and *Leptothrombium* from the adult only. The last genus is regarded by Berlese as but a subgenus of *Eutrombidium*.

The following key will help in the separation of the genera.

Oudemans 1911, *Hannemania* Oudemans 1911, *Gahrlepiea* Oudemans 1912, *Schöngastia* Oudemans 1910, *Neoschöngastia* Ewing 1929, *Schöngastiella* Hirst 1915, *Odontacarus* Ewing 1929, *Walchia* Ewing 1932, *Endotrombicula* Ewing 1932, *Atomus* Latr. 1795 (= *Metathrombium* Oudemans 1909), *Trombicula* Berlese 1905 (= *Neotrombicula* Hirst 1925).

Very few of these genera are known from the adult forms, most of them being represented in collections by larvae. The larval stages are generally to be found as ectoparasites on warm-blooded animals (including man) but some appear to be restricted to amphibians.

The genus *Atomus* Latr. (= *Metathrombium* Ouds.) is here regarded as being more properly placed in the *Microtrombidinae*.

The various genera may be separated with the help of the following key:

1. Adults; body 8-shaped. Eyes one or none on each side 2.
Larvae 3.
2. Eyes placed at base of large sensillary area of crista, or absent. Sensillary area broad with two pseudostigmal hairs. Gen. *Trombicula* Berlese, 1903.
Eyes placed on anterior margin of thorax; apex of thorax incised.
Gen. *Blankaartia* Oudemans, 1911 (not Australian).
3. With two median dorsal shields. Eyes two on each side, posterior eye the smaller. Dorsum behind second shield with numerous small symmetrical shields. Lower lip not as a chitinous ring. Tarsi I and II with only 2 claws, III with three. Gen. *Blankaartia* Oudemans, 1911 (not Australian).
With one or three median dorsal shields and only one eye on each side . . . 4.
4. Anterior dorsal shield with 3 or more pairs of setae, in addition to the two pseudostigmal hairs 5.
Dorsal shield with only 4 or 5 single setae besides the pseudostigmal hairs . . . 9.
5. Dorsal shield with 5 pairs of setae besides the pseudostigmal hairs. Femur of leg I only divided; one pair of setae between coxae I and one pair between coxae III. Palpal claw bifurcate. Gen. *Gahrlepiea* Oudemans, 1912.
(= *Typhlothrombium* Oudemans, 1911) (not Australian).
Dorsal shield with 3 pairs of setae 6.
6. Pseudostigmal hairs clavate.
Gen. *Schöngastiella* Hirst, 1915 (not Australian).
Pseudostigmal hairs not clavate 7.
7. Median dorsal shield longer than broad; maxillary coxal setae in front of palpi . . . Gen. *Heterothrombium* Verdun, 1910 (not Australian).
Dorsal shield broader than long 8.
8. Dorsal shield without any median anterior process but with a poorly developed crista . . . Gen. *Hannemania* Oudemans, 1911 (not Australian).
Dorsal shield with a short median anterior process; without crista.
Gen. *Leeuwenhoekia* Oudemans, 1911.

9. Dorsal shield trapezoidal 10.
 Dorsal shield triangular. Palpal claw with 1-5 points.
 Gen. *Doloisia* Oudemans, 1912 (not Australian).
10. Dorsal shield with only two pairs of setae besides the pseudostigmal hairs;
 latter clavate. Eyes absent or rudimentary. Palpal claw trifurcate.
 Gen. *Walchia* Ewing, 1931 (not Australian).
 Dorsal shield with 5 setae in addition to the pseudostigmal hairs; latter clavate
 or not 11.
11. Pseudostigmal hairs clavate 12.
 Pseudostigmal hairs not clavate 13.
12. Chelicerae with a row of teeth dorsally; palpal claw usually bifurcate.
 Gen. *Schöngastia* Oudemans, 1910.
 Chelicerae without more than one dorsal tooth; palpal claw trifurcate. Eyes
 two Gen. *Neoschöngastia* Ewing, 1929 (not Australian).
13. Dorsal shield distinctly pentagonal, with the posterior sides forming a strong
 angle. Eyes two on each side or absent 14.
 Dorsal shield at most roughly 5-sided, without strong posterior angle . . 15.
14. Eyes two on each side. Gen. *Pentagonella* Sig Thor, 1936 (not Australian).
 Eyes absent Gen. *Reidlinea* Oudemans, 1916 (not Australian).
15. Dorsal shield poorly developed; all 5 setae placed near middle of shield;
 median anterior seta simple; pseudostigmal hairs short, simple, setiform.
 Chelicerae with 3 sharp recurved teeth on upper margin and a vestigial lateral
 tooth. Eyes 2 + 2, well developed.
 Gen. *Endotrombicula* Ewing, 1931 (not Australian).
 Dorsal shield well developed, the 5 setae marginal or submarginal . . 16.
16. Chelicerae with a row of teeth on upper margin.
 Gen. *Odontacarus* Ewing, 1929 (not Australian).
 Chelicerae with not more than one tooth on upper margin.
 Gen. *Trombicula* Berlese, 1905.
 (= *Neotrombicula* Hirst, 1925).

Of the above genera only *Trombicula* Berlese 1905, *Schöngastia* Oudemans 1910, and *Lecuwenoekia* Oudemans 1911 are so far known to be represented in Australia.

Genus TROMBICULA Berlese, 1905.

The following five species of this genus are recorded from Australia, two as adults and three as larvae.

TROMBICULA SIGNATA Womersley, 1934.

Described from a solitary adult specimen from Western Australia. The type is in the South Australian Museum.

TROMBICULA TINDALEI Womersley, 1936.

Described from a specimen taken on Flinders Chase, Kangaroo Island, South Australia by Mr. N. B. Tindale. Type in the South Australian Museum.

TROMBICULA HIRSTI Sambon, 1927.

Only known from the larval form, this species is the "ti-tree itch mite" of Queensland and South Australia. Its real host is unknown but recently the writer has had a specimen from a blackbird where it was found walking over the beak after the death of the bird. This specimen was from Payneham, South Australia. June 30th, 1937.

TROMBICULA NOVAE-HOLLANDIAE Hirst, 1929.

Described from larvae found on *Rattus greyi* from Kangaroo Island, South Australia, it was later taken on *Potorous tridactylus* in Tasmania.

TROMBICULA MACROPUS Womersley, 1934.

This species was described from specimens of larvae found attached to the scrotum of a wallaby from Darwin, Northern Australia.

Genus *SCHÖNGASTIA* Oudemans, 1910.

Of this larval genus five species have been described from the Australian continent as follows:

SCHÖNGASTIA ANTIPODIANUM Hirst, 1929.

From *Rattus greyi* from Kangaroo Island, South Australia.

SCHÖNGASTIA COORONGENSIS Hirst, 1929.

From the ears of a rodent at Robe, South Australia.

SCHÖNGASTIA DASYCERCI Hirst, 1929.

From *Dasycercus cristicauda*, Ooldea, South Australia.

SCHÖNGASTIA WESTRALIENSE Womersley, 1934.

From the ears of a domestic cat, Greenbushes, Western Australia.

SCHÖNGASTIA PETROGALE Womersley, 1934.

From the scrotum of a wallaby, Musgrave Ranges, South Australia.

Genus LEEUWENHOEKIA Oudemans, 1911.

LEEUWENHOEKIA AUSTRALIENSE Hirst, 1925.

Originally described from specimens taken on a human being in New South Wales, it has also been found on the ears of a domestic cat at Glen Osmond, South Australia.

Subfamily VII, MICROTROMBIDIINAE Sig Thor, 1935.

Body small to moderately large. Abdomen cordate. Body hairs very variable, smooth, thin, weakly ciliated or thick (apparently unciliated), dagger-like, clavate or globular, frequently combed on inner side, septate or not. Eyes usually in two pairs or absent, sessile or shortly pedunculate. The sensillary area of crista behind the eyes, usually posterior or subposterior, occasionally submedial. Palpi on fourth segment with one or a few spines (besides accessory claw), on inner side with a longer or smaller comb of stiff hairs and sometimes some spine-like setae. Nasus absent (except *Neotrombidium*). Legs generally shorter than or as short as body. Larvae with 1, 2 or 5 large dorsal plates, sometimes these followed by rows of round or quadrate plates bearing setae. Eyes usually two on each side, occasionally only one. Hind tarsi with 2 or 3 claws, modified or not. Lower lip of mouth parts not ring-like.

Within this subfamily Sig Thor places the following:

Microtrombidium Haller 1882 (subg. *Enemothrombium* Berlese, 1910; *Campylothrombium* Krause, 1916); *Dromethrombium* Berlese, 1912; *Ettmülleria* Oudemans, 1911 (larvae); *Atomus* Latr., 1795 (= *Metathrombium* Oudemans, 1911); *Polydiscia* Methlagl, 1927; *Neotrombidium* Leonardi, 1901; *Georgia* Hull, 1918; *Calothrombium* Berlese, 1918; *Haplothrombium* Ewing, 1925 (larvae); *Dendrothrombium* Sig Thor, 1936; *Platythrombidium* Sig Thor, 1936; *Camerothrombium* Sig Thor, 1936.

In 1935 (Zool. Anz. cix, 111) in defining his subfamily Sig Thor expressed the opinion that *Enemothrombidium* and *Campylothrombium* should be regarded as only subgenera of *Microtrombidium*. Later, however (Zool. Anz. 1936, cxiv, 30-31) he further split up the *Microtrombidium* complex and erected three additional new genera, *Dendrothrombium*, *Platythrombidium* and *Camerothrombium* on corresponding differences in hair structure. As restricted in the present paper both *Enemothrombidium* and *Campylothrombium* are regarded as of generic status in accordance with Sig Thor's later paper. The genus *Centrothrombium* Krause, for reasons stated earlier, is also included in this subfamily. Here also the following new genera are erected and defined: *Echinothrombium* (type *Ottonia spinosum* Canest.); *Laminothrombium* (type *M. myrmicum* Womersley, 1934); *Eutrichothrombium* (type *M.(E.) eutrichum* Berlese, 1905).

The larval genus *Ettmülleria*, although evidence is not conclusive, would appear to be the larval stage of *Echinothrombium* or *Camerothrombium*, more probably the latter (see Womersley 1936, J. Linn. Soc. London, xl, 114).

KEY TO THE GENERA OF MICROTROMBIDIINAE.

1. Larval forms 2.
Adult forms 5.
2. With two large dorsal shields which are punctate. Inner claw of tarsus III strongly modified, short stump-like and directed backwards. Palpi with claws 3.
One or five large dorsal shields; if one, then this followed by a series of rows of large dorsal shields. Inner claw of tarsus III not as above 4.
3. The dorsal setae behind the second shield placed on small round plates. Eyes $2 + 2$, sessile. Gen. *Ettmülleria* Oudemans, 1911.
No small plates behind second shield. Eyes $2 + 2$, sessile.
Gen. *Atomus* Latr., 1795.
(= *Metathrombium* Oudemans, 1909 (not Australian)).
4. With 5 large transverse dorsal shields. Eyes $1 + 1$. Tarsus of leg III with only two claws, one long and one short, and a long stiff seta with long secondary hairlets Gen. *Hoplothrombium* Ewing, 1925 (not Australian).
With one large dorsal plate, this hour-glass shaped and porous; the dorsum behind occupied by 16 large quadrate plates each bearing a seta. Eyes $2 + 2$, sessile, on small plates. Claws on all tarsi unmodified.
Gen. *Polydiscia* Methlagl, 1927 (not Australian).
5. With a distinct nasus. Dorsal body hairs uniform, trifurcate from base, with few or no serrations Gen. *Neotrombidium* Leonardi, 1911.
Without a nasus 6.
6. Sensillary area of crista submedial. Palpi with strong accessory claw, three strong spines on inner side and 8-9 on outer side of tibia. Body hairs short but strong, frequently bifurcated from base, the arms sometimes expanded and forming an enclosure, with strong hairlets.
Gen. *Calothrombium* Berlese, 1918.
Sensillary area of crista posterior or subposterior 7.
7. Palpal tarsus clavate, apically with two strong long forwardly directed spines; tibia with long apical claw and small accessory claw. Pseudostigmal hairs clavate (Oudemans). Eyes $2 + 2$.
Gen. *Centrotrombidium* Krause, 1896 (not Australian).
Not so 8.
8. Dorsal hairs uniformly of one type but sometimes of variable length 9.
Dorsal hairs of two distinct types 17.
9. Dorsal hairs tapering, pointed, with long outstanding hairlets 10.
Gen. *Microtrombidium* Haller, 1882.
Dorsal hairs different 11.

10. Legs I and IV shorter than the body. Subg. *Microtrombidium* Haller, 1882.
 Legs I and IV longer than body. Subg. *Dromeothrombium* Berlese, 1912.
11. Dorsal body hairs long and spine-like with few serrations. Palpal tibia with one large accessory claw and a few spine-like setae.
 Gen. *Echinothrombium* nov. (part).
 (type *O. spinosum* Canest., 1877).
 Not so 12.
12. Dorsal body hairs tree-like with fine intermingling branches. Palpal tibia laterally with a strong forwardly directed spine. Tarsi I oval, broad, much longer than metatarsus.
 Gen. *Dendrothrombium* Sig Thor, 1936 (not Australian).
 Not so 13.
13. Dorsal body hairs not septate 14.
 Dorsal body hairs septate, divided into chambers 16
14. Dorsal body hairs sessile, short, conical, pointed with numerous short ciliations. Palpal tibia laterally with at least one, often many, strong spines. Tarsus I generally elongate-oval, longer than metatarsus.
 Gen. *Platythrombium* Sig Thor, 1936.
 Not so 15.
15. Dorsal body hairs more or less sessile, arising from short conical tubercles, leaf-like with marginal ciliations. Palpal tibia with strong accessory claw and without strong dorsal spines. Tarsus I short and broad.
 Gen. *Laminothrombium* nov.
 (type *M. myrmicum* Wom., 1934).
 Dorsal body hairs on short peduncles, claviform, apically acute or rounded, with short ciliations Gen. *Enemothrombium* Berlese, 1905 (part).
16. Dorsal body hairs short stalked or sessile, cup-like with short stiff ciliations.
 Gen. *Camerothrombium* Sig Thor, 1936 (part).
 Dorsal body hairs long, claviform and not cup-shaped, backwardly curved, with subapical septum and open apex.
 Gen. *Campylothrombium* Krause, 1916 (part) (not Australian).
17. Many of the dorsal hairs with thick stems and long strong hairlets and multi-ramous apically, the rami being as thick as the stem; other hairs equally thick with long hairlets but not ramous Gen. *Georgia* Hull, 1918 (not Australian).
 Not so 18.
18. Shorter hairs as in *Microtrombidium*; larger hairs stout, spine-like with few or no serrations Gen. *Echinothrombium* nov. (part).
 Shorter hairs otherwise 19.
19. Longer hairs septate 20.
 Longer hairs not septate 21.
20. Longer hairs elongate, claviform, open at apex.
 Gen. *Campylothrombium* Krause, 1916 (part) (not Australian).
 Longer hairs cup-like or globose, on short peduncles.
 Gen. *Camerothrombium* Sig Thor, 1936 (part).

21. Shorter hairs sessile, short, conical, pointed, with numerous ciliations, as in *Platythrombidium*, or else without ciliations and with 4–5 short apical fungi-form lobes; longer hairs claviform or rod-like with many ciliations.

Gen. *Enemothrombium* Berlese, 1905 (part).

Shorter hairs globose; without septa, closely packed but with longer fine setae interspersed Gen. *Eutrichothrombium* nov.

(type *M.(E.) eutrichum* Berlese, 1905) (not Australian).

Genus ETTMULLERIA Oudemans, 1911.

This larval genus is, so far, represented in Australia by the following two species.

ETTMULLERIA AUSTRALIS Womersley, 1936.

Reared from eggs which may have been those of a species of *Echinothrombium* or *Camerothrombium* from Flinders Chase, Kangaroo Island, South Australia.

ETTMULLERIA OBSCURA Womersley, 1936.

Only known from a single individual found in moss from Glen Osmond, South Australia.

Genus NEOTROMBIDIUM Leonardi, 1901.

Represented in Australia by a single species *N. barringtonense* Hirst 1928, which is known from New South Wales and South Australia.

Genus CALOTHROMBIUM Berlese, 1918.

To this genus should be referred the following three species.

CALOTHROMBIUM RETENTUS (Banks, 1916).

= *Rhyncholophus retentus* Banks, 1916.

= *Microtrombidium retentus* Womersley, 1934.

The longer dorsal hairs often bifurcated with straight branches. Palpal tarsus with 3 inner spines. Tarsus I four times as long as high and only slightly longer than metatarsus.

This species is only known from the type material from Victoria.

CALOTHROMBIUM KOORDANUM (Hirst, 1928).

= *Microtrombidium koordanum* Hirst 1928, Womersley 1934.

The longer dorsal hairs bi- or trifurcate from base, the branches widened, leaf-like and forming more or less of an enclosure between the leaves. Palpi with clavate tarsus. Tarsi I twice as long as high and equal in length to metatarsus.

Only known from type material from Koorda, Western Australia.

CALOTHROMBIUM TUBBI sp. nov.

(Text fig. I a-d).

Description. Colour reddish. Length 1.923 mm., width 1.29 mm. Eyes 2 + 2 sessile, placed well forward on anterior margin of thorax. Crista 345μ long with posterior sensillary area and two pseudostigmal hairs. Palpi 430μ long, femur almost cylindrical and but little swollen, tibia with large blunt apical claw and smaller accessory claw behind which are two spines, tarsus long and cylindrical reaching tip of claw. Legs short; I 1345μ , tarsus elliptical 283μ by 170μ , metatarsus 173μ ; II 865μ ; III 770μ ; IV 1070μ . Dorsal hairs uniform, bifurcated at base, one branch being fan- or leaf-like and convex, the other branch elongate and curved in towards the fan, both branches with long ciliae.

Locality. A single specimen collected by Mr. H. Tubb at Heathmont, Victoria, July 28th, 1934.

Genus MICROTROMBIDIUM Haller, 1882.

Subgenus DROMEOTHROMBIUM Berlese, 1912.

This is separated from the subgenus *Microtrombidium* s. str. by the great length of the first and fourth legs. The following Australian species should be placed here.

MICROTROMBIDIUM (DROMEOTHROMBIUM) ATTOLUS (Banks, 1916).

= *Rhyncholophus attolus* Banks, 1916.

= *Microtrombidium attolus* Womersley, 1934.

Only known from the type material from Sydney, New South Wales.

Subgenus MICROTROMBIDIUM Haller, 1882, s. str.

Nine Australian species can be referred to this subgenus in the restricted sense. They may be keyed as follows:

1. Eyes wanting. Front tarsus 4 times as long as high. Dorsal hairs long and slender, 26μ , tapering with long hairlets. Palpal tibia with 2 or 3 accessory claw-like spines *M. (M.) barringtonense* Hirst, 1928.
- Eyes present, two on each side, sessile 2.
2. Front tarsus elongate, at least $2\frac{1}{2}$ times as long as high with straight sides which are parallel or converge perceptibly apically 3.
- Front tarsus elliptical with rounded sides, at most only slightly more than twice as long as high 4.

3. Tarsus I 204μ by 85μ , with sides converging towards apex, metatarsus 136μ . Hairs variable in length up to 65μ , with long outstanding hairlets. Palpal tibia with accessory claw and three strong spines on inner side, without lateral forwardly directed spine *M.(M.) westraliense* Womersley, 1934.
Front tarsus with parallel sides, 415μ by 135μ , metatarsus 235μ . Dorsal hairs variable in length up to 50μ , with long hairlets which on some of the longer hairs lie closer apically giving a clavate bushy appearance. Palpal tibia with strong accessory claw and laterally a strong forwardly directed spine.
M.(M.) myloriense sp. nov.
4. Front tarsus broadest basally, with a very distinct basal angle. Dorsal hairs 35μ . Palpal tibia with accessory claw 5.
Front tarsus broadest in the middle, without distinct basal angle 6.
5. Smaller species, 1190μ , tarsus I twice as long as high, 272μ by 136μ , metatarsus 136μ . Dorsal setae 35μ long *M.(M.) karriense* Womersley, 1934.
Larger species 2040μ , tarsus I 450μ by 270μ , metatarsus longer than tarsus is high, 300μ . Dorsal setae 35μ long *M.(M.) tasmanicum* sp. nov.
6. Dorsal hairs 26μ , tapering, uniform in length, tarsus I 272μ by 136μ , sides strongly and evenly curved, widest in middle, metatarsus 270μ . Palpal tibia with accessory claw, without strong lateral spine. Length 1275μ .
M.(M.) aequalis (Banks, 1916).
Dorsal hairs 40μ or more long, uniform 7.
7. Dorsal hairs variable in length to 52μ , longer ones bushy at apex and appearing somewhat clavate. Tarsus I, 220μ by 90μ , broadest in middle. Palpal tarsus with accessory claw. Length 930μ *M.(M.) newmani* Wom., 1934.
Dorsal hairs 40μ long, uniform 8.
8. Tarsus I 187μ by 102μ , widest in middle, metatarsus 102μ long. Palpal tibia with accessory claw followed by a dorsal series of spines. Length 1000μ by 1100μ *M.(M.) adelaidicum* Wom., 1928.
Tarsus I 272μ by 136μ ; widest medially, metatarsus nearly as long as tarsus, 238μ . Palpal tibia with accessory claw and series of spines. Length to 1200μ .
M.(M.) affine Hirst, 1928.

MICROTROMBIDIUM (M.) BARRINGUNENSE Hirst, 1928.

Only known from the type material from Barrington, New South Wales.

MICROTROMBIDIUM (M.) WESTRALIENSE Womersley, 1934.

Found associated with ants in Western Australia.

MICROTROMBIDIUM (M.) KARRIENSIS Womersley, 1934.

This species is widely distributed in South Australia, and I have records of it from Morialta Gorge, September 2nd, 1934; Mount Osmond, June 10th, 1934; Mylor, September 14th, 1935; Mount Compass, June 7th, 1935; National Park, Belair, May 6th, 1935, July 19th, 1936, July 4th, 1937; Adelaide, May 11th, 1936; Mount Lofty, May, 1937.

MICROTROMBIDIUM (M.) *AEQUALIS* (Banks, 1916).

As stated in my previous paper, the type of this species appears to have become lost, but a second record from Western Australia was given.

MICROTROMBIDIUM (M.) *NEWMANI* Womersley, 1934.

Only known from the type record of Bedford-dale, Western Australia.

MICROTROMBIDIUM (M.) *AFFINE* Hirst, 1928.

This species is fairly common in and around the Adelaide district of South Australia.

MICROTROMBIDIUM (M.) *ADELAIDICUM* Womersley, 1934.

Not uncommon around Adelaide, South Australia.

MICROTROMBIDIUM (M.) *MYLORIENSE* sp. nov.

(Text fig. 1, e-g).

Description. Length 1.91 mm., width 1.335 mm. Colour reddish. Abdomen ovate, with moderately rounded shoulders, thorax small 550μ wide; eyes $2 + 2$, sessile, placed on lateral edge of thorax; crista short, 300μ long, sensillary area broad with two pseudostigmal hairs, anterior arm of crista two-thirds as wide as sensillary area. No nasus. Palpal tibia with strong apical claw and accessory claw, laterally a strong forwardly projecting spine and on outer side of tibia with a number of strong spines; tarsus slightly clavate, reaching tip of claw. Legs shorter than body, I 1600μ , tarsus I with almost parallel sides, 415μ by 135μ , metatarsus 235μ long. Body hairs slightly variable in length, $25-50\mu$, pointed with long hairlets but in some of the longer ones the apical hairlets tend to cling giving a brush-like appearance.

Locality. Two specimens from under a stone along Cox Creek, Mylor, South Australia, September 26, 1937.

MICROTROMBIDIUM (M.) *TASMANICUM* sp. nov.

(Text fig. 1, k-n).

Description. Length 2.0 mm. Colour reddish. Abdomen ovate without distinct shoulders, 1.2 mm. wide, thorax 600μ wide without nasus. Eyes $2 + 2$, sessile, placed on anterior margins of thorax; crista 430μ long with posterior sensillary area and two pseudostigmal hairs. Palpal tibia with strong apical and

accessory claws and on outer side with some strong setae, apparently without lateral forwardly directed spine; tarsus not clavate, reaching tip of claw. Legs shorter than body; tarsus I 450μ by 270μ , elliptical, broadest before the middle, metatarsus 300μ long. Dorsal body hairs uniform, with strong lateral hairlets, but not forming a distinct apical taper; length of hairs $30\text{--}35\mu$.

Locality. Two specimens collected by Mr. J. W. Evans on Mount Wellington, Tasmania, October, 1935.

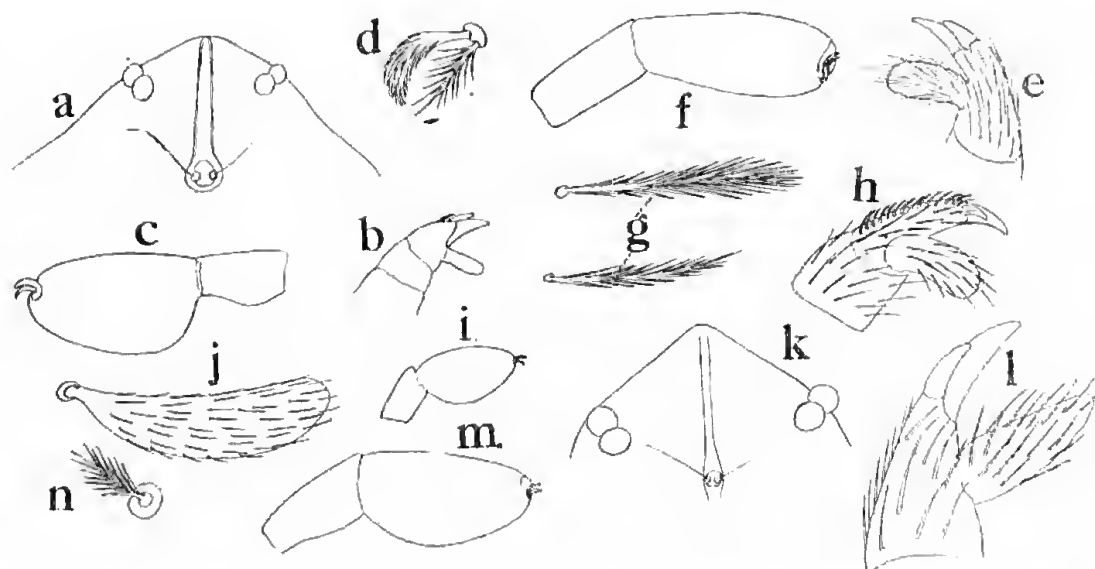


Fig. 1. a-d, *Calothrombium tubbi* sp. nov.; a, anterior end showing eyes and crista; b, tip of palp; c, front tarsus and metatarsus; d, dorsal seta. e-g, *Microtrombidium* (M.) *mygloriense* sp. nov.; e, tip of palp; f, front tarsus and metatarsus; g, dorsal seta. h-j, *Eumothrombium evansi* sp. nov.; h, tip of palp; i, front tarsus and metatarsus; j, dorsal seta. k-n, *Microtrombidium* (M.) *tasmanicum* sp. nov.; k, anterior end showing eyes and crista; l, tip of palp; m, front tarsus and metatarsus; n, dorsal seta.

Genus ECHINOTHROMBIDUM nov.

As in *Microtrombidium* s. str. but all or some of the body hairs long strong and spine-like with relatively few or no short serrations.

The type of the genus is *Ottonia spinosum* Canestrini 1877, and other species are *M. echidninum* Hirst, 1931 (= *M. victoriense* Womersley, 1934); *M. spinatum* Womersley, 1934; *O. hystrixinum* Canestrini; *diversipile* Canestrini; *M. southcotti* Womersley, 1934; *M. willungae* Hirst, 1931.

Of these *spinatum*, *echidninum*, *southcotti* and *willungae* are Australian, *spinosum* is European while *hystrixinum* and *diversipile* are known from New Guinea.

KEY TO THE AUSTRALIAN SPECIES OF ECHINOTHROMBIDUM.

1. All the dorsal spines variable in length but uniform and spinelike with short serrations. Tarsus I 270μ by 135μ , elliptical, metatarsus 190μ long. Palpal tarsus clavate, tibia with terminal and accessory claw and two spines.
E. spinatum (Wom., 1934).
 Dorsal spines interspersed with different setae, short, smaller, with long hairlets 2.
2. Dorsal spines sparsely and minutely serrated, tapering apically, $200-230\mu$ long; smaller setae 25μ , pointed with comparatively long hairlets. Tarsus I $3\frac{1}{2}$ times as long as high, sides almost parallel. *E. echidninum* (Hirst, 1931).
 = *victoriense* (Wom., 1934).
 Dorsal spines not much more than 100μ long; shorter setae not so pointed, with relatively shorter hairlets. Front tarsus elliptical. Species smaller . . . 3.
3. Front tarsus twice as long as high *E. southcotti* (Wom., 1934).
 Front tarsus three times as long as high *E. willungae* (Hirst, 1931).

ECHIDNINUM SPINATUM (Womersley, 1934).

The type of this species was collected at Glen Osmond, South Australia.

ECHINOTHROMBIDUM ECHIDNINUM (Hirst, 1931).

= *M. echidninum* Hirst, 1931.

M.(E.) victoriensis Womersley, 1934.

This is one of the most abundant Trombid mites in South Australia. It is undoubtedly synonymous with my species *M.(E.) victoriensis*.

ECHINOTHROMBIDUM SOUTHCOTTI (Womersley, 1934).

= *M.(E.) southcotti* Womersley, 1934.

Described from material from Belair, South Australia.

Genus PLATYTHROMBIDIUM Sig Thor, 1936.

To this genus belongs the single Australian species.

PLATYTHROMBIDIUM PARANUM (Hirst, 1928).

= *Microtrombidium paranum* Hirst 1928, Womersley 1934.

This species is only known from the type material from Gawler, South Australia.

Genus LAMINOTHROMBIDUM nov.

Dorsal body hairs leaf-like with strong midrib and marginal ciliations. Front

tarsi elliptical, width more than half the length. Palpal tibia with strong apical and accessory claws.

The type and only species of this genus is

LAMINOTHROMBIUM MYRMICUM (Womersley, 1934).

= *M. myrmicum* Womersley, 1934.

Described from material from the nest of ants in South Australia.

Genus ENEMOTHROMBIUM Berlese, 1905, s. str.

As restricted in the generic key this genus will include the two following species:

ENEMOTHROMBIUM CYGNUS Womersley, 1936.

= *M.(E.) cygnus* Womersley, 1936.

Described from a single specimen from Flinders Chase, Kangaroo Island, South Australia.

ENEMOTHROMBIUM EVANSI sp. nov.

(Text fig. 1 h-j).

Description. Length 1.1 mm., width 0.7 mm. Colour in life reddish. Eyes 2 + 2, sessile and placed on anterior margin of thorax. Crista 160 μ long, well developed with posterior sensillary area and two pseudostigmatal hairs. Palpal tibia with strong apical and subapical accessory claws, dorsally with a series of strong spines running right to base and laterally and inwardly with another shorter series. Legs shorter than body; tarsus I elliptical 176 μ by 100 μ , widest in middle, metatarsus 95 μ long. Dorsal body hairs of approximately uniform length, sessile, cylindrical, with blunt apex and with longitudinal lines of fine serrations.

Locality. The type of this species was found by Mr. J. W. Evans in a rotten log on Mount Wellington, Tasmania, in May, 1935. A second specimen was from moss from Brisbane, Queensland, in October, 1934, and a third from Fern Tree Gully, Victoria, in January, 1937.

Genus CAMEROTHROMBIUM Sig Thor, 1936.

Sig Thor places in this genus the following Australian species: *E. simile* Hirst, *E. collinum* Hirst and *E. hirsti* Womersley. To them should be added *E. wyandrac* Hirst. These four species may be separated as follows:

- | | |
|--|----|
| 1. Smaller dorsal hairs cup-shaped with minute denticles | 2. |
| Smaller dorsal hairs otherwise | 3. |

2. Larger dorsal hairs with stem suddenly expanding to form eup. Tarsus I three and a half times as long as high .. *C. simile* (Hirst, 1928).
Larger dorsal hairs with stem gradually expanding to form eup. Tarsus I less than 3 times as long as high *C. hirsti* (Wom., 1934).
3. Smaller dorsal hairs very irregular, with small lateral fungiform lobes. Tarsus I more than 4 times as long as high *C. wyandrae* (Hirst, 1928).
Smaller dorsal hairs more regular, rod-like. Tarsus I more than 3 times as long as high *C. collinum* (Hirst, 1928).

CAMEROTHROMBIUM SIMILE (Hirst, 1928).

= *M.(E.) simile* Hirst, 1928.

= *M.(E.) simile* Womersley, 1934.

This species is fairly widely distributed in South Australia.

CAMEROTHROMBIUM HIRSTI (Womersley, 1934).

= *M.(E.) hirsti* Womersley, 1934.

As yet known from the type material only.

CAMEROTHROMBIUM WYANDRAE (Hirst, 1928).

= *M. wyandrae* Hirst, 1928.

Only known from the type material.

CAMEROTHROMBIUM COLLINUM (Hirst, 1928).

= *M. collinum* Hirst, 1928.

There are no further records beyond that of the type material.

Genus EUTRICHOTHROMBIUM nov.

Dorsal body hairs globular, on peduncles, without septa and interspersed with fine longer needle-like setae; globular hairs finely ciliated. Palpal tibia without true accessory claw but with a few dorsal setae and with a strong inner lateral forwardly directed spine. Tarsi elliptical.

This new genus is erected for the Javanese species *E. eutrichum* Berlese, 1903.

Subfamily VIII, TROMBIDIINAE Michael, 1883 (part), Sig Thor, 1936.

Body large or very large, triangular or cordate, thickly covered with elongate or clavate or ciliated or feathered hairs, generally reddish. No nasus. Eyes paired on long peduncles. Crista with sensillary area and two pseudostigmal

hairs; sometimes the crista is tripartite, usually entire, always narrow. Palpi large; tarsus long and clavate, tibia simple with apical claw but no accessory claw or comb. Legs short and thick, tarsi without pulvilli.

Included here are the genera *Trombidium* Fab. 1775 (= *Sericothrombium* Berlese, 1910); *Dinothrombium* Oudemans, 1910 (= *Trombidium* Berlese, 1905); *Xenothrombium* Oudemans, 1927; *Caenothrombium* Oudemans, 1927; and *Austrothrombium* Womersley, 1934. They may be keyed thus:

1. Crista divided into three parts, with broad sensillary area, anterior arm ending in a broad rectangular plate in which the front margin is straight or only slightly concave. Gen. *Dinothrombium* Oudemans, 1910 (not Australian).
Crista entire 2.
2. Crista with the sensillary area medial, anterior arm simple and not ending in a plate Gen. *Xenothrombium* Oudemans, 1927.
Crista with the sensillary area anterior of middle 3.
3. Body hairs claviform or brush-like; apex of abdomen incised.
Gen. *Trombidium* Fab., 1775.
(Larvae with two dorsal plates, front plate with 3 pairs of setae and 2 pseudo-stigmal hairs. Claw of maxillary palp bifurcate. Median dorsal plate transverse; front plate folding below to venter. Mouth-parts not visible from above, lower lip ring-like. Leg III with deformed inner claw.)
Not so; crista anteriorly with a broad transverse plate 4.
4. Anterior plate of crista very deeply cleft, so as to appear fork-like.
Gen. *Austrothrombium* Womersley, 1934.
Anterior plate of crista with straight or only slightly concave front margin,
Gen. *Caenothrombium* Oudemans, 1927.

Genus XENOTHROMBIUM Oudemans, 1927.

Only represented in Australia by the following recently discovered species.

XENOTHROMBIUM HIRSUTUM sp. nov.

(Text fig. 2 e-j.)

Description. Length to 3.0 mm., width 1.5 mm., with a distinct constriction behind the shoulders. Colour bright red. Crista well developed with the sensillary area anterior of the middle, anterior arm simple and not ending in a transverse plate. Eyes 2 + 2, pedunculate. Palpi as figured, tarsus long, clavate, and reaching tip of claw. Legs shorter than body, strong; tarsus I 654μ by 211μ , more or less with parallel sides, metatarsus 480μ . Body thickly clothed with very long ciliated hairs, mostly up to 300μ long and red, but some up to 7–800 μ and white (cf. fig. 2j).

Locality. This species has so far been found only at the National Park, Belair, South Australia, 1936 and since. It is moderately common under stones and fallen branches.

Genus CAENOTHROMBIUM Oudemans, 1927.

This seems to be the dominant genus in South Australia, no fewer than ten species having been described to date.

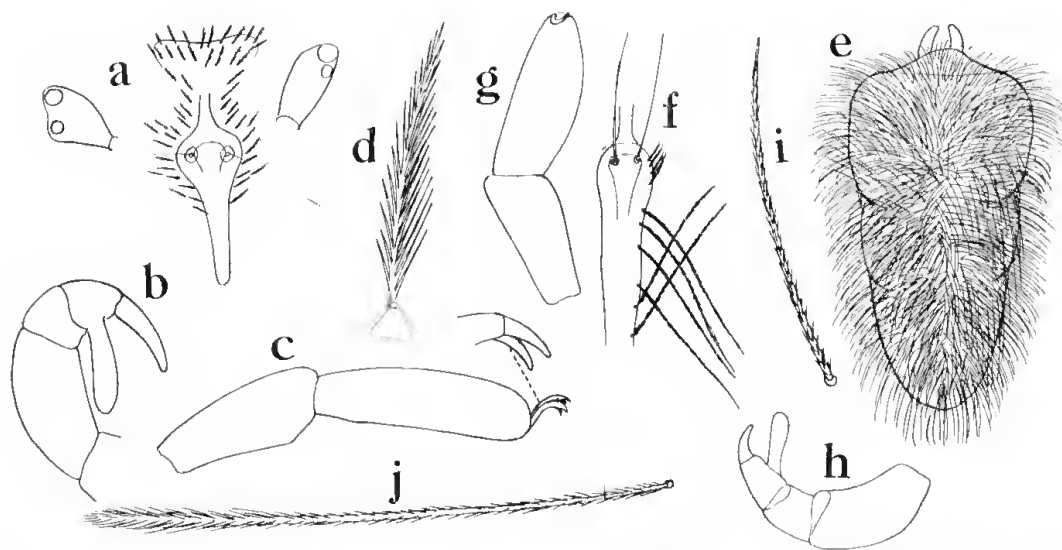


Fig. 2. a-d, *Caenothrombium furcatum* sp. nov.; a, crista and eyes; b, palp; c, front tarsus and metatarsus with claws enlarged; d, dorsal seta. e-j, *Xenothrombium hirsutum* sp. nov.; e, dorsal view; f, crista; g, front tarsus and metatarsus; h, palp; i, shorter dorsal seta; j, longer dorsal seta.

KEY TO THE SPECIES.

1. Anterior two pairs of legs with bifurcate, occasionally trifurcate, claws; posterior two pairs with simple claws. Tarsus I nearly 4 times as long as high, with parallel sides; metatarsus $\frac{3}{4}$ length of tarsus. Dorsal hairs 70μ long, pointed, with long hairlets *C. furcatum*, sp. nov.
All tarsal claws simple 2.
2. Dorsal body hairs of two sizes. Front tarsus 3 times as long as high, 425μ long.
C. montivagum (Hirst, 1928).
= *rainbowi* (Hirst, 1929).
Dorsal body hairs more uniform 3.
3. Front tarsus very elongate, about 7 times as long as high. Length of animal 2.4 mm. *C. augustae* (Hirst, 1928).
Front tarsus much shorter, not exceeding $4\frac{1}{2}$ times as long as high 4.
4. Front and hind legs much longer than body. Front tarsus $4\frac{1}{2}$ times as long as high, 780μ by 175μ . A large well defined white patch on each shoulder and another at apex of abdomen *C. album* Womersley, 1934.
Front and hind legs scarcely exceeding length of body 5.

- There are no fresh records for this species.

CAENOTHROMBIUM AUGUSTAE (Hirst, 1928).

= *Dinothrombium augustae* Hirst, 1928.

Caenothrombium augustae Womersley, 1934.

This species is fairly widely distributed in the southern parts of South Australia.

CAENOTHROMBIUM ALBUM Womersley, 1934.

Also a fairly widely distributed species.

CAENOTHROMBIUM TORRIDUM (Hirst, 1929).

= *Dinothrombium torridum* Hirst, 1929.

Dinothrombium taylori Hirst 1929.

Caenothrombium torridum Womersley, 1934.

This appears to be rather an uncommon species in the southern part of South Australia.

CAENOTHROMBIUM MINIATUM Womersley, 1934.

Not uncommon around the Adelaide district.

CAENOTHROMBIUM NYNGANENSE (Hirst, 1928).

= *Dinothrombium nynganense* Hirst, 1928.

Caenothrombium nynganense Womersley, 1934.

Common and widely distributed in South Australia; it also occurs in New South Wales.

CAENOTHROMBIUM CRASSUM (Hirst, 1928).

= *Dinothrombium crassum* Hirst, 1928.

Caenothrombium crassum Womersley, 1934.

Only known from previously published records.

CAENOTHROMBIUM SERICATUM (Rainbow, 1906).

= *Trombidium sericatum* Rainbow, 1906.

Dinothrombium splendidum Hirst, 1928.

Dinothrombium ventricosum Hirst, 1928.

Caenothrombium sericatum Womersley, 1934.

I have no further records of this species to add to those already published.

CAENOTHROMBIUM NOBILE (Hirst, 1928).

= *Dinothrombium nobile* Hirst, 1928.

Caenothrombium nobile Womersley, 1934.

No additional records.

Genus AUSTROTHROMBIUM Womersley, 1934.

Of this genus the three following species only are known from Australia :

AUSTROTHROMBIUM AUSTRALIENSE (Hirst, 1929).

= *Allothrombium* (*Mesothrombium*) *australiense* Hirst, 1929.

Austrothrombium australiense Womersley, 1934.

There are no further specimens to be recorded.

AUSTROTHROMBIUM INSIGNE (Hirst, 1928).

= *Allothrombium* (*Mesothrombium*) *insigne* Hirst, 1928.

Austrothrombium insigne Womersley, 1934.

I know of no further specimens of this species.

AUSTROTHROMBIUM KONDINIUM (Hirst, 1928).

= *Allothrombium* (*Mesothrombium*) *antipodianum* v. *kondinium* Hirst, 1928.

Allothrombium (*Mesothrombium*) *kondinium* Hirst, 1929.

Austrothrombium kondinium Womersley, 1934.

Only known from the previously published records.

Genus TROMBIDIUM Fab., 1775.

No adult species of this genus has yet been found in Australia, but the following larval form has recently been discovered by the writer.

TROMBIDIUM CLARKI sp. nov.

(Text fig. 3a-f.)

Description. Length 2.3 mm., width 1.5 mm. Colour red. Mouth parts not visible from above, lower lip forming a chitinous ring. Anterior dorsal plate only slightly showing on the dorsal surface, mostly ventral, 175 μ wide posteriorly and 112 μ anteriorly, finely and longitudinally striate, with three pairs of hairs and one pair of long fine pseudostigmal hairs. Posterior plate wide and short, 142 μ by 50 μ , longitudinally striated with two hairs, 4 times its own length from

the anterior plate. Eyes small, $2 + 2$. Dorsal body hairs short, fine with few ciliations and sparse, in 5 rows of 2, 4, 4, 4, 2. Legs: anterior pairs of coxae adjacent, tarsi with three claws, front two pairs with the middle claw long and slender, lateral claws stouter, shorter and subapically trifurcate; inner claw on leg III modified, stump-like and directed backwards, outer claw spine-like with long hairlets, middle one short and sickle shaped. Venter with three pairs of hairs behind third legs.

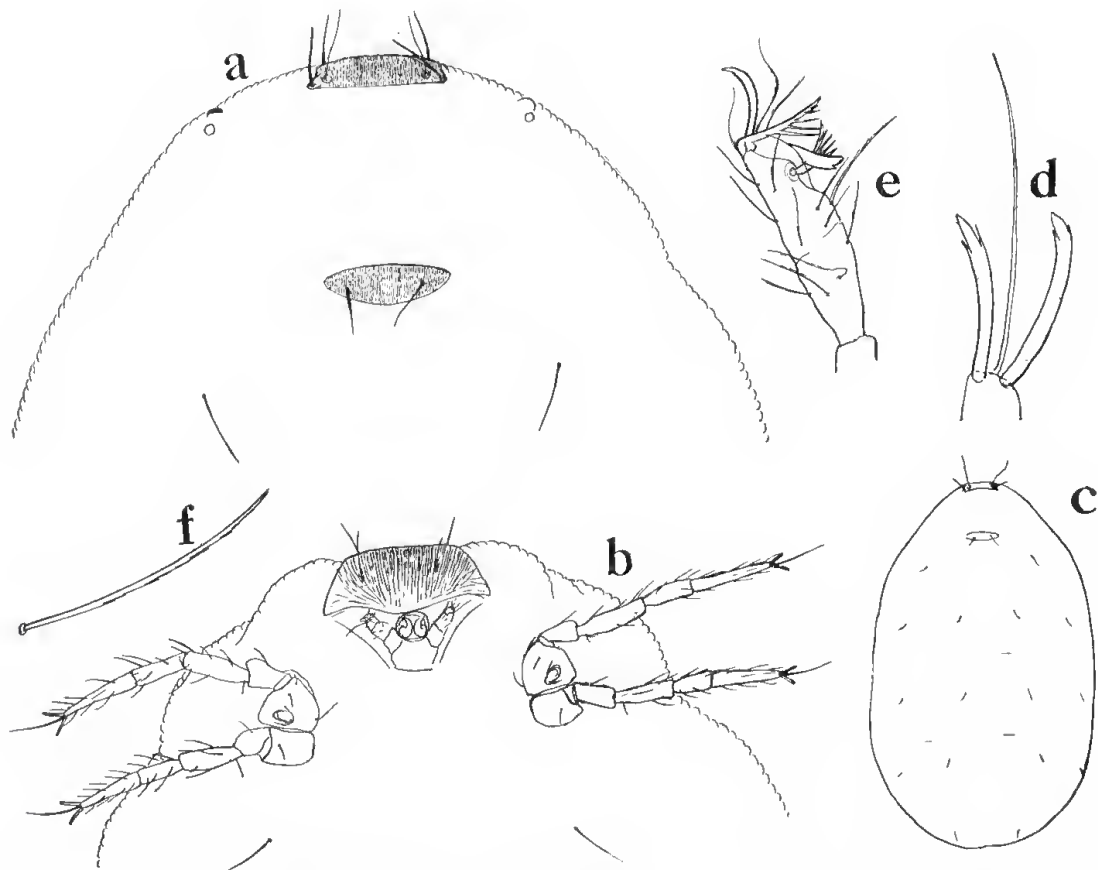


Fig. 3. a-f, *Trombidium clarki* sp. nov.; a, anterior half from above; b, same from below; c, entire dorsal view; d, front claws; e, posterior claws; f, dorsal seta.

Locality. Several specimens taken from an Anthomyid fly at Fern Tree Gully, Victoria, in January, 1937. It is named in honour of Mr. J. Clark, Entomologist to the National Museum, Melbourne.

Subfamily IX, ALLOTHROMBIINAE Sig Thor, 1936.

Body larger, with strong shoulders, rounded, with bristle-like feathered, seldom furcate hairs. Eyes $2 + 2$ on long peduncles. Crista distinctly tripartite,

The two genera *Allothrombium* Berlese 1903 and *Coreothrothrombium* Oudemans 1928, are placed in this subfamily. Only the first of these is known from Australia.

1.	Up to 1·2 mm, in length, sparse haired; form rather elongate and much constricted behind shoulders. Body hairs uniform and with few long secondary hairlets	<i>A. delicatulum</i> Womersley, 1934.
	Large species	2.
2.	Dorsum with a distinct pattern of red and white. Some of the body hairs very much elongated	<i>A. guttatum</i> Hirst, 1928. = <i>ornatum</i> Hirst, 1928.
	Colour entirely red	3.
3.	Body hairs uniform, short, plumose. Front tarsus twice as long as high.		<i>A. wyandrae</i> Hirst, 1928.
	Body hairs of two distinct types	4.
4.	Longer body hairs more clavate apically, axial thread thicker; shorter hairs more tapering apically	<i>A. antipodianum</i> Hirst, 1926. = v. <i>olorinum</i> Hirst, 1926. <i>parvulum</i> Hirst, 1929. ? <i>wasseli</i> Hirst, 1931.
	Longer body hairs less clavate apically, the hairlets longer near the base, stalk apparently shorter; short hairs not tapering apically.		<i>A. terrae-reginae</i> Hirst, 1929.

This small species is moderately abundant under loose stones, fallen branches and even on tree trunks in the National Park, Belair, South Australia.

= *Allothrombium guttatum* Hirst, 1928.
Allothrombium ornatum Hirst, 1928.
Allothrombium guttatum Womersley, 1934.

I have no further records of this species since my earlier papers.

ALLOTHROMBIUM ANTIPODIANUM Hirst, 1926.

= *Allothrombium antipodianum* Hirst, 1926.

Allothrombium antipodianum v. *olorinum* Hirst, 1926.

Allothrombium parvulum Hirst, 1929.

Allothrombium ? *wasseli* Hirst, 1931.

Allothrombium antipodianum Womersley, 1934.

I have no further records of this species. The species *A. wasseli* described posthumously by Hirst appears to be identical with the above form as far as one can judge by the description, the accompanying drawings of which were lost after Hirst's death.

ALLOTHROMBIUM TERRAE-REGINAE Hirst, 1929.

There is nothing further to add to the previously published data on this species.

ALLOTHROMBIUM WYANDRAE Hirst, 1928.

Only known from the type material from Mount Kosciusko, N.S.W.

Subfamily X, STYGOThROMBIINAE Sig Thor, 1936.

Body small, elongate, worm-like, swollen dorsally, with only small rudimentary hairs. Cuticle thin, striated, with low papillae. Crista similarly rudimentary, narrow, anteriorly with weak areola which, near the two sensory hairs, has 4 or 5 fine hairs. Rostrum outstanding, behind flask-like, in front spoon-like, with two bristles. Mandibles long and narrow with stylet-like claw. Palpal segments weakly differentiated, fourth segment can be distinguished with the reduced fifth attached; segment II has 2 thorns and 6 long hairs, III 3 thorns and some hairs, IV with a few hairs and a long thin end claw (no accessory claw). Legs with 3 claws, the lateral combed. Species living in water.

This subfamily is entirely unknown in Australia. It includes only the genus *Stygothrombium* Veitz, 1932, and its subgenus *Cerberothrombium* Veitz, 1934.